

The Claims

Claims 1-13 (Canceled)

14. (Previously presented) A multi-channel sound reproduction system for testing hearing and hearing aids comprising:

at least one audio source;

a listening position at which a test subject is placed;

a plurality of loudspeakers for receiving a plurality of audio signals from the audio source;

a first further loudspeaker located at approximately ear level and at front and center of a test subject in the listening position, the first further loudspeaker for receiving a further audio signal from the audio source;

a second further loudspeaker located at an overhead center position directly above the test subject in the listening position; and

the at least one audio source transmitting a time-offset or delayed sum of at least a portion of the plurality of audio signals and the further audio signal to the second further loudspeaker.

Claims 15- 37 (Canceled)

38 (Previously presented) A sound system comprising:

at least one audio source;

an audio signal processing system for receiving a plurality of audio signals from the audio source and for generating therefrom a plurality of processed audio signals,

a listening position at which a test subject is placed; and

a plurality of loudspeakers placed about the listening position, the plurality of loudspeakers for receiving at least a portion of the plurality of processed audio signals and for converting those processed audio signals received into a combination of sounds that produce at the listening position acoustic elements typical of a real acoustic environment,

wherein the audio signals are representative of recordings made by a plurality of microphones that are placed at locations relative to a recording position that correspond to the locations of the plurality of loudspeakers relative to the listening position, the plurality of microphones during recording facing away from a center of the recording position, the recording position being located in an environment having sounds desired to be reproduced at the listening position.

39. (Previously presented) The sound system of claim 38, wherein the plurality of loudspeakers comprises eight loudspeakers placed in a circle.

40. (Previously presented) The sound system of claim 39, wherein the plurality of loudspeakers face the center of the listening position.

41. (Previously presented) The sound system of claim 40, wherein each of the eight loudspeakers are placed equidistant from the listening position.

42. (Previously presented) The sound system of claim 38, wherein the plurality of loudspeakers face different directions relative to each other and relative to the listening position.

43. (Previously presented) The sound system of claim 38, wherein the plurality of loudspeakers are located at varying heights relative to the listening position.

44. (Previously presented) The sound system of claim 38, wherein one of the plurality of processed audio signals represents a target signal and a remainder of the plurality of processed audio signals comprise multiple interfering noise signals.

45. (Previously presented) The sound system of claim 44, wherein the audio signal processing system comprises a clinical audiometer, wherein the clinical audiometer comprises a first channel that is configured to control a level of the target signal, and a second channel that is configured to control levels of the multiple interfering noise signals.

46. (Previously presented) The sound system of claim 38, wherein the audio signal processing system comprises level-dependent attenuators.

47.(Previously presented) The sound system of claim 38, wherein all but one of the plurality of processed audio signals comprises discrete adjusted versions of the plurality of audio signals and wherein the one of the plurality of processed audio signals comprises a combination of the plurality of audio signals.

48.(Previously presented) The sound system of claim 47, wherein the combination of the plurality of audio signals comprises an equal proportion of the plurality of audio signals.

49. (Previously presented) The sound system of claim 38, wherein at least two of the plurality of loudspeakers generate sound that appears to, but does not, emanate from another of the plurality of loudspeakers.

50.(Previously presented) The sound system of claim 38, wherein the at least one audio source is calibrated by generation of a predetermined sound pressure level at a calibration point located at or near the listening position.

51.(Previously presented) The sound system of claim 38, wherein the test subject comprises a microphone.

52.(Previously presented) The sound system of claim 51, wherein the microphone is configured to improve the signal-to-noise ratio of a signal produced by the microphone while in the listening position.

53. (Previously presented) The sound system of claim 51, wherein the microphone comprises at least one of a directional and omnidirectional microphone.

54. (Previously presented) The sound system of claim 38, wherein the test subject comprises a hearing aid.

55. (Previously presented) The sound system of claim 38, wherein the acoustic elements typical of a real acoustic environment are similar to adverse listening conditions that occur in the real world.

56. (Previously presented) The sound system of claim 38, wherein the combination of sounds produced at the listening position by the plurality of loudspeakers provide a simulation of the real acoustic environment in a clinical setting.

57. (Withdrawn) A method of testing audio capability comprising:
recording sounds of an acoustic environment via a plurality of microphones placed about and facing away from a recording position;
storing the sounds recorded by each of the plurality of microphones as audio signals in an audio source;
recording speech;
storing the recorded speech as a target signal in the audio source; and

reproducing, from the stored target signal and the stored audio signals and via a plurality of loudspeakers placed about and facing into a listening position, sounds representative of the speech and of the acoustic environment at the listening position.

58.(Withdrawn) The method of claim 57, further comprising combining at least a portion of the audio signals and the target signal before reproducing sounds representative of the speech and of the acoustic environment at the listening position.

59.(Withdrawn) A sound system comprising:
at least one audio source;
a listening position at which a test subject is placed; and
a plurality of loudspeakers placed about the listening position, the plurality of loudspeakers for receiving audio signals from the audio source, at least two of the plurality of loudspeakers generating sound from at least a portion of the audio signals which appears to, but does not, emanate from at least one other of the plurality of loudspeakers.

60.(Withdrawn) A sound system comprising:
at least one audio source;
a listening position at which a test subject is placed; and
eight loudspeakers approximately equidistant from and facing toward a center of the listening position, the eight loudspeakers for receiving audio signals from the audio source, the audio signals being representative of recordings made by eight microphones

that are approximately equidistant from and facing away from a center of a recording position, the recording position being located in an environment having sounds desired to be reproduced at the listening position.

61. (Withdrawn) The sound system of claim 60, wherein a distance between each of the eight loudspeakers and the center of the listening position is approximately the same as a distance between each of the eight microphones and the center of the recording position.

62.(Withdrawn) The sound system of claim 60, wherein the eight loudspeakers are placed in a circle around the listening position, and wherein the eight microphones are placed in a circle around the recording position.